

Prepared for:



RIO METRO
REGIONAL TRANSIT DISTRICT

November 2018

BALLOON FIESTA PARK

Railroad Spur Feasibility Update 2018

WCI Project: 1810005901

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WILSON
& COMPANY

discipline | intensity | collaboration | shared ownership | solutions

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Executive Summary

Wilson & Company was contracted by the Mid-Region Council of Governments (MRCOG) in 2008 to study the feasibility of construction of a spur railroad track from the NMRX system main line track to access the Albuquerque Balloon Fiesta Park. In November 2018, Wilson & Company was contracted by the Rio Metro Regional Transit District (Rio Metro) to update the previous 2008 Feasibility Report (dated November 4, 2008). The report includes a description of the existing conditions and recent developments near the proposed project. The proposed spur railroad track would likely only be used by the Rail Runner during the Balloon Fiesta Event in October of each year.

The proposed project encounters a number of features in each of the two Alternative alignments from the NMRX main line track to the Balloon Fiesta Park. The features include a private road crossing, the MRGCD Alameda Lateral, Edith Boulevard and the AMAFCA North Diversion Channel. Additionally, development has occurred in the vacant properties to the west of the North Diversion Channel since the study was originally completed.

A passenger platform is planned for each of the Alternatives on either the west side or the east side of the North Diversion Channel. Alternative 1 would require pedestrian bridges across the channel for access to the park. Some pedestrian enhancements to the Balloon Fiesta Park infrastructure would be needed for the new entrance and to meet ADA accessibility requirements.

Construction of a spur track from the NMRX main line track to access the Balloon Fiesta Park is feasible. Conceptual construction costs for Alternative 1 is \$11.2 million and Alternative 2 is \$8.4 million. The ability of patrons to use Rail Runner to access the park will be an enhancement. This will allow for additional modes of travel to access to the park.

Introduction

Wilson & Company was contracted by the Mid-Region Council of Governments (MRCOG) in 2008 to study the feasibility of construction of a spur railroad track from the NMRX system main line track to access the Albuquerque Balloon Fiesta Park. In November 2018, Wilson & Company was contracted by the Rio Metro Regional Transit District (Rio Metro) to update the previous 2008 Feasibility Report (dated November 4, 2008). The report includes a description of the existing conditions and recent developments near the proposed project. The proposed spur railroad track would likely only be used by the Rail Runner during the Balloon Fiesta Event in October of each year. It includes details of potential modifications to the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) North Diversion Channel and potential modifications to the Balloon Fiesta Park (Park) in the region of the proposed improvements.

For the purposes of this study, “Rail Runner” refers to the commuter rail service owned by NMDOT and operated by Rio Metro. “NMRX system” refers to the railroad infrastructure likewise owned by NMDOT and maintained by Rio Metro, and variously used by the Rail Runner, Amtrak and BNSF.

Project Area and Background

The project area is located north of Alameda Road and south of Roy Avenue in northwest Albuquerque and the unincorporated areas of Bernalillo County, New Mexico. The NMRX main line track alignment is in a north-south between 2nd Street and Edith Boulevard. The proposed access to the Park would be via a railroad spur from the NMRX system to the east where it would connect to the west side of the Park.

Two major water resource features are located within the project area: Middle Rio Grande Conservancy District (MRGCD) Alameda Lateral irrigation ditch which parallels the NMRX main line track and the North Diversion Channel that runs in a north-south direction until it comes to the Balloon Fiesta Park where it turns to the west to discharge into the Rio Grande. See [Figure 1](#) for a map of the project area.



Figure 1: Project Area

Existing Conditions

The existing features within the project area include the properties and developments between Edith Boulevard (just east of the main line track) and the Balloon Fiesta Park, the North Diversion Channel, Edith Boulevard, roadway bridge across the North Diversion Channel, and the Balloon Fiesta Park itself.

For a majority of the project area, the elevation of the top of the North Diversion Channel is higher than the surrounding areas with a substantial vertical relief. As the channel heads north, the elevation of surround areas becomes higher than the top of the channel. See [Figure 2](#) and [Figure 3](#) for graphics depicting the vertical relief using 2-ft contours.

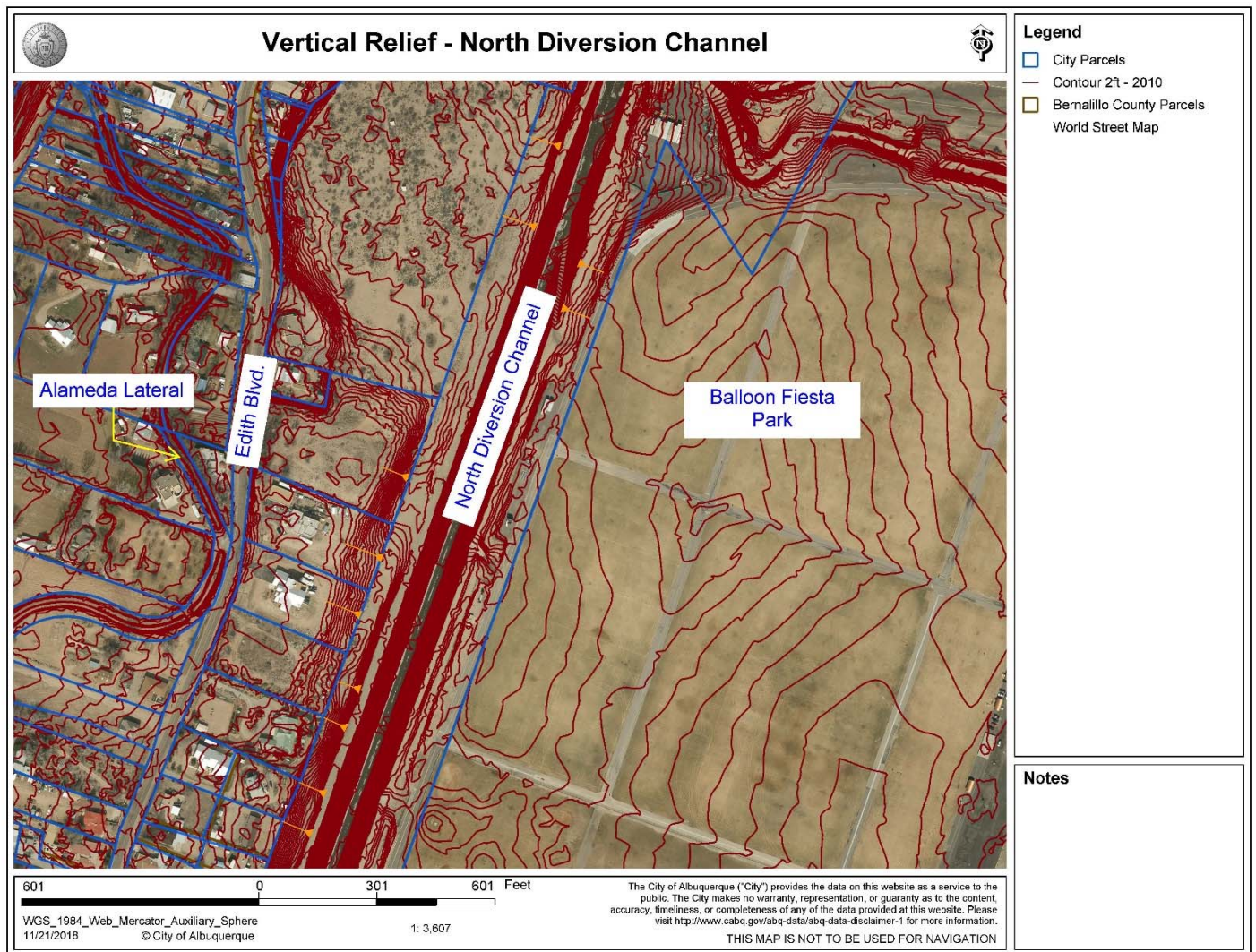


Figure 2: Vertical Relief – North Diversion Channel: Elevation of Channel is Above Surrounding Area

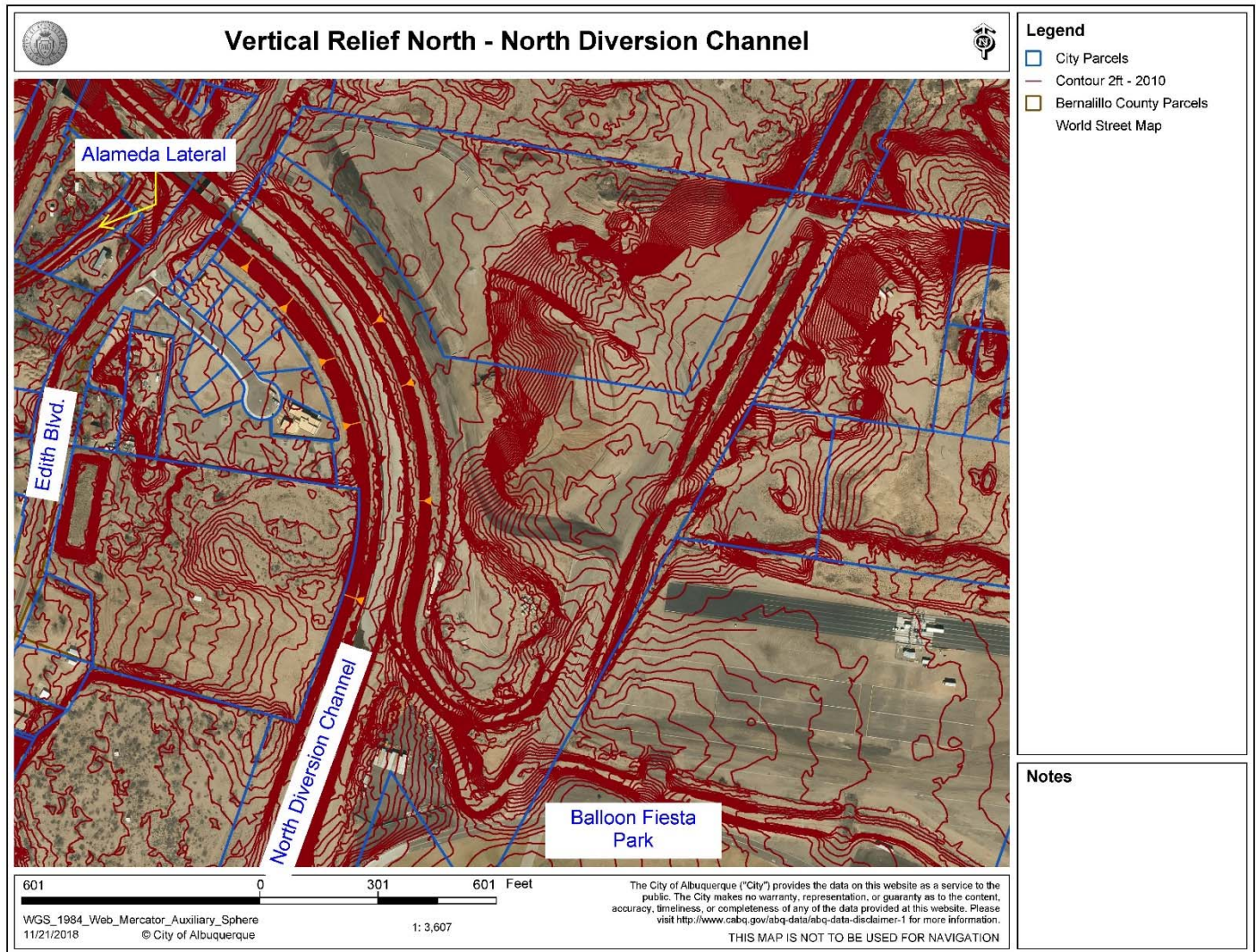


Figure 3: Vertical Relief – North Diversion Channel: Elevation of Channel is Below Surrounding Area



Figure 4: Residential Development – Amara Vista Ct. (Looking South)

The most recent changes in the existing conditions have occurred in the area between Edith Boulevard and the North Diversion Channel, north of Baker Lane. Within the last year, an approximately 16 acre RV park was constructed; and a gated residential community with approximately 9 lots has begun to take shape with several homes under construction or recently completed. The residential lots sit approximately 8-ft higher than the top of the vertical walls of the North Diversion Channel ([Figure 4](#)).

Several of these features will need to be addressed for the proposed spur, including:

- **Alameda Lateral Crossing** – replace or provide other structural support to cross lateral
- **Edith Boulevard** – provide at-grade crossing with crossing signal
- **North Diversion Channel** – structural infrastructure to support existing concrete channel walls (sloped walls south of curve in channel, and vertical walls along curve of channel)
- **Balloon Fiesta Park Drainage Channel** – provide crossing of channel
- **Roadway Bridge** – retrofit or replacement of roadway bridge over the North Diversion Channel (just north of the field) that connects the Balloon Fiesta Park to the RV Park
- **Radio Transmission Towers** – Three towers were identified in the original study but have since been removed with the construction of the RV Park
- **Developments** – Potential issues involving noise and visual mitigation for the residential development and RV Park

These features will need to be taken into consideration should the project move forward. Coordination with the residential property owners as well as the RV Park will be necessary for a successful implementation of this project.

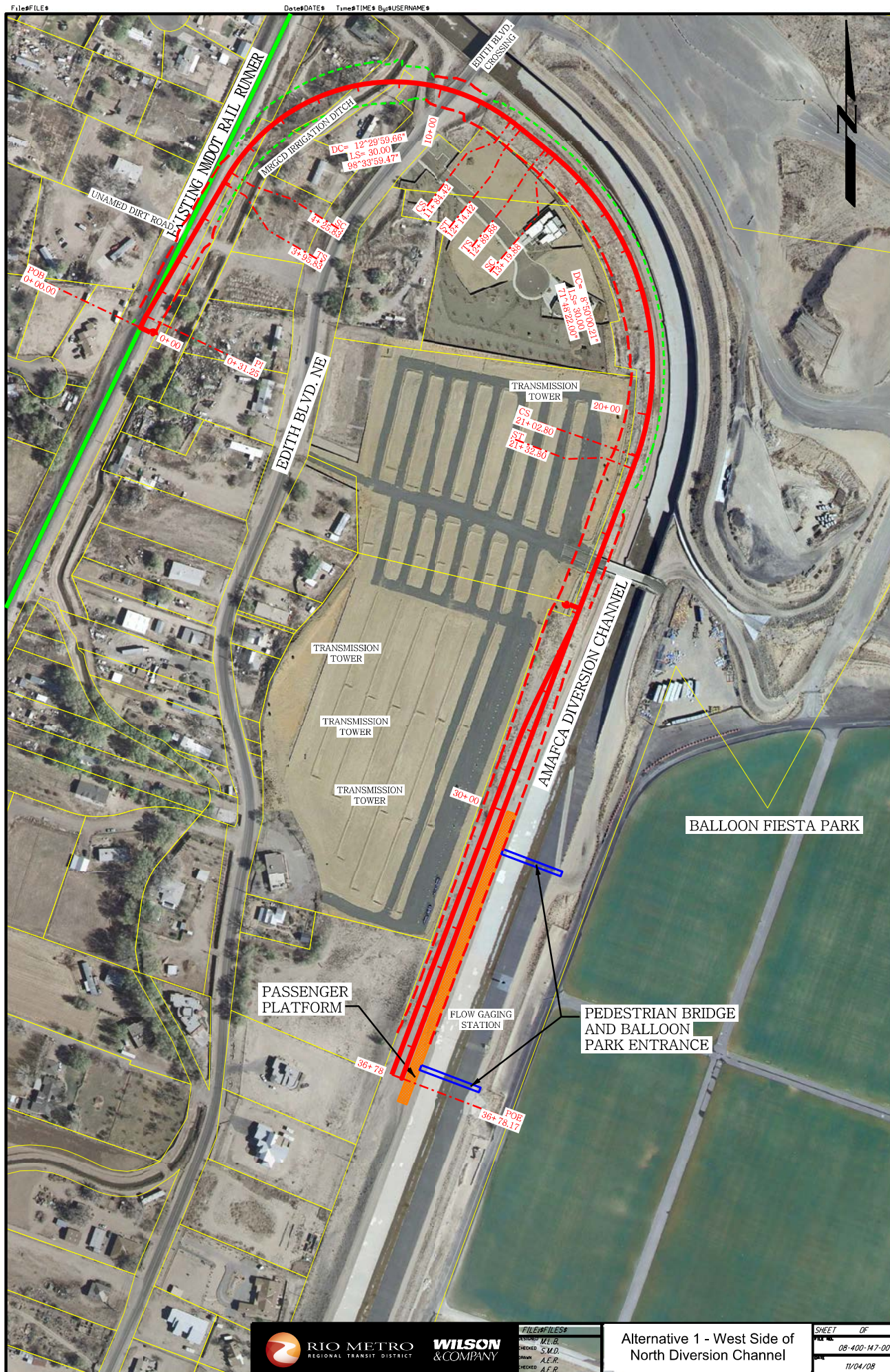
Proposed Balloon Fiesta Park Spur – Alternatives 1 & 2

General Track Features

Alternative 1 – West Side of North Diversion Channel

Alternative 1 of the proposed track starts in the proximity of NMR Mile Post 893.5 through a right-hand turn (facing north) to the east. The proposed track alignment proceeds across an unnamed dirt road, approximately 800-ft south of the North Diversion Channel. It is currently gated on the east side of the railroad right of way. This unnamed road appears to provide access from Edith Boulevard to several residences on the west side of the main line track. Since it is gated, this report will assume that it will remain closed and not be improved for this project. The crossing at Edith Boulevard would be an at-grade crossing. From this point on, the track would run adjacent to the North Diversion Channel following the curve and running parallel for a distance along the west side of the channel. The track would cross the new roadway bridge/RV Park access at an at-grade crossing. The track would end on a tangent alignment with the new passenger platform. Passengers would cross the North Diversion Channel via pedestrian bridges to access the Balloon Fiesta Park. See [Figure 5](#) for a layout of Alternative 1.

The maximum vertical gradient for the track is 2.6% while the maximum horizontal curvature is 12 degrees 30 minutes. While the horizontal curvature is somewhat higher than desired, this allows for lesser property requirements and is not an impediment to train operations on this track. A maximum speed of 20 mph is anticipated for the operation of trains on this spur. In addition to the main spur track, an additional storage track is anticipated providing approximately 900 feet of storage.



Alternative 2 – East Side of North Diversion Channel

Alternative 2 of the proposed track starts in the proximity of NMRX Mile Post 893.7 through a left-hand turn (facing south) to the east side. The track proceeds east along the north side of the North Diversion Channel, crossing the Alameda Lateral, and continuing along the east side of the North Diversion Channel as it curves back to a north-south alignment. The track would cross a drainage channel from the Balloon Fiesta Park that connects into the North Diversion Channel, as well as the new roadway bridge/RV Park access at an at-grade crossing. From this point on, the track would run adjacent to the North Diversion Channel and running parallel for a distance along the east side of the channel. The track would end on a tangent alignment with the passenger platform. Passengers would access the Balloon Fiesta Park via the proposed platform. See [Figure 6](#) for a layout of Alternative 2.

As in Alternative 1, the maximum vertical gradient for the track is 2.6% while the maximum horizontal curvature is 12 degrees 30 minutes. While the horizontal curvature is somewhat higher than desired, this allows for lesser property requirements and is not an impediment to train operations on this track. A maximum speed of 20 mph is anticipated for the operation of trains on this spur. In addition to the main spur track, an additional storage track is anticipated providing approximately 900 feet of storage.

Balloon Fiesta Park Field

For either Alternative 1 or 2, the entryway into the Balloon Fiesta Park will need improvements. This may include new asphalt walking paths, pedestrian access with ADA accessibility, and a barrier to protect pedestrians from North Diversion Channel.

North Diversion Channel

This proposed project has extensive interaction with the North Diversion Channel for both Alternatives. For Alternative 1, it provides the boundary on the north and east side for construction of the track. For Alternative 2, it provides the boundary on the south and the west side of construction of the track.

The geometry of the typical channel section varies as channel alignment goes from north-south and curves to an east-west alignment. From the south to the north end of the Balloon Fiesta Park Field, the channel is a trapezoid shape. As the channel starts to curve, the shape transitions to a square bottom shape with vertical walls.

Near the south end of the proposed passenger platform in Alternative 1, the west channel levees are built out of fill dirt placed to form the channel. In some locations south of the Alternative 1 proposed platform, the fill is quite high. Examination by geotechnical engineers indicated that it would be undesirable to build track on the fill portions of the channel. It is a matter of convenience for this project that the location where the levee fills begin, the platform and track can be terminated. Additional geotechnical evaluation was not completed for this study update, and for Alternative 2 the assumption will be made that the fill dirt levees occur along the east side of the channel. Additional investigation will be required as the project moves forward.

In both Alternatives, the fill section would be close to the back of the channel wall. Geotechnical engineers indicated that the static loading on the channel walls would likely not be an issue, but the dynamic load of a moving train will likely cause an issue. The wall would therefore need to be strengthened upon a more detailed analysis.



MATCH LINE SEE SHEET 1 OF 2



RIO METRO
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| DESIGNED <i>WLB</i> |
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Alternative 2 - East Side of
North Diversion Channel

| |
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| SHEET 2 OF 2 |
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Alameda Lateral

The Alameda Lateral runs along the east side of the NMRX main line track in the vicinity of this project and a majority is an open dirt channel. At roadway crossings, the channel crosses under within a culvert. As it approaches the North Diversion Channel the lateral goes under the channel and continues north. It is normally in use during irrigation season between the months of March and October. Depending upon the final alignment, crossing the lateral will likely require a new culvert or other structure.

Passenger Platform

The general concept for a passenger platform on each side of the North Diversion Channel is to locate the platform near the north half of the Balloon Fiesta Park Field. The platform is proposed for a five-car Rail Runner train, and 500-ft long by 25-ft wide. A 750-ft long by 25-ft wide platform is proposed for Alternative 1 due to the restriction of available area due to the North Diversion Channel. Alternative 2 has the Balloon Fiesta Park area available should an overflow area be needed. This width is wider than the normal but it will provide a more comfortable area for large number of passengers expected. A barrier should be installed along the edge of the channel and the platform to protect passengers from vertical differential near the channel.

For Alternative 1, pre-fabricated pedestrian bridges are proposed to allow crossing of the North Diversion Channel. Two bridges are proposed to handle the large number of passengers expected for quicker ingress/egress from the platform area. A clear span over the channel would be expected so as to not interfere with the function of the channel.

Right of Way Needs

Each Alternative has right of way needs required to implement the improvements. As shown in Figure 5, Alternative 1 would traverse through private, MRGCD, and AMAFCA properties at the southwest corner of the intersection of Edith Boulevard and the North Diversion Channel. An easement across Edith Boulevard as well as easements through AMAFCA and Balloon Fiesta Park property would likely be needed for its implementation. The residential subdivision properties along Amara Vista Court may be affected if slope easements or temporary construction permits are needed. It appears that property would need to be acquired from the RV Park area along the west side of the North Diversion Channel.

As shown in Figure 6, Alternative 2 would traverse through private, MRGCD, and AMAFCA properties at the northwest corner of the intersection of Edith Boulevard and the North Diversion Channel. An easement across Edith Boulevard as well as easements through AMAFCA and Balloon Fiesta Park property would likely be needed for its implementation.

Wayside Signals

Two options for wayside signals are proposed for the project and include the installation of an electric lock on the main line track, and the installation of a control point on the main line track.

Option A – Installation of Electric Lock on the Main Line

The installation of an electric lock for the main line turnout leading to the Balloon Fiesta Park Station would provide a manual field-controlled location for use in station routing. This electric lock would require a switch tender to throw the switch for entrance into the turnout. Throwing the switch for station routing would cause adjacent signal locations to downgrade to red aspects. A project is currently slated to install a siding ending railroad west of the Alameda Road crossing. The Alameda east end of

siding would be a Control Point, a red signal aspect would require a train to pass the red signal only after the dispatcher has given permission. Therefore, in order to give full flexibility for train operations, once the train bound for the Balloon Fiesta Park Station reaches the electric lock, that train would stop short of the switch and a switch tender would throw the switch for station routing. Once the train enters the turnout and has left the foul of the main line, the switch tender would throw the switch for mainline routing. When the train is slated to leave the station, the switch tender would open the electric lock, waiting for the safety timing to complete, and then be allowed to throw the switch for station routing. The train would enter the main line and the switch tender would throw the switch for main line routing. This methodology would be utilized throughout the needed period in order to provide efficient operations.

Option B – Installation of Control Point on the Main Line

The installation of a Control Point for the main line turnout leading to the Balloon Fiesta Park Station would provide a dispatcher-controlled location for use in routing trains on main line routing or into the turnout for station routing. This Control Point addition would cause the need to add a new location to the PTC SUBDIV file, as well as needed survey of PTC critical features upon installation and PTC wayside testing. A project is currently slated to install a siding ending railroad west of Alameda Road crossing. The addition of another Control Point within less than a mile of the Alameda end of siding will produce braking issues and require repeating of signal aspects in order to provide safe braking.

At-Grade Crossing Warning

For both Alternatives, Edith Boulevard would become an at-grade crossing. Therefore, crossing warning devices would be necessary. The existing roadway is a two-lane facility, therefore two gate mechanisms with flashing lights and bells would be necessary to provide crossing warning. A crossing enclosure would also be necessary for control of the crossing warning devices and train detection equipment. The use of track circuits for train detection would provide adequate crossing warning for the crossing.

A second potential at-grade crossing would be located at the roadway bridge crossing the North Diversion Channel to access the RV Park. For this study, it is assumed that temporary crossing warning devices or flaggers would be used at this location.

Conceptual Construction Estimates

Based on the descriptions of the alternatives and infrastructure improvements needed for each, conceptual construction estimates have been prepared. A 30% contingency has been included for each estimate as well as NMGRT at 8.5%, Engineering at 8%, and Construction Management at 8%.

Table 1: Conceptual Cost Estimate – Alternative 1

**Conceptual Construction Estimate
Alternative 1**

NM Rail Runner Balloon Fiesta Park Track
November 21, 2018 (updated 11.27.2018)

| ITEM | UNIT | QTY | UNIT PRICE | COST | COMMENTS |
|---|------|--------|--------------|------------------------|---|
| Right-of-way | LS | 1 | \$450,000.00 | \$450,000.00 | Assume easements will be acquired from AMAFCA, MRGCD, and BernCo - no cost Assume full take of two residential properties at curve (SE corner of NMRX & NDC) |
| Environmental Investigations/Certification | LS | 1 | \$100,000.00 | \$100,000.00 | Assume environmental clearance needed for federal funding |
| Embankment | CY | 23,000 | \$15.00 | \$345,000.00 | |
| Excavation | CY | 29,400 | \$10.00 | \$294,000.00 | |
| Track | | | | | |
| No. 11 Turnout | EA | 2 | \$225,000.00 | \$450,000.00 | Price for RR forces; assume 1.5 more for non-RR pricing |
| 136 lb Track | TF | 3,600 | \$400.00 | \$1,440,000.00 | Assumes material and installation; ballast, concrete ties, welds, etc. |
| 136 lb Track (storage track) | TF | 900 | \$400.00 | \$360,000.00 | Assumes material and installation; ballast, concrete ties, welds, etc. |
| Road Crossing | LF | 60 | \$750.00 | \$45,000.00 | Conservative - range \$350 to \$750/LF |
| CTC Signal work | EA | 1 | \$200,000.00 | \$200,000.00 | Preferred wayside signal option - electric locks, \$190K per Pacific Railway Enterprises, use \$200K |
| Crossing Signals | LS | 1 | \$350,000.00 | \$350,000.00 | Assume new signalized xing at Edith, \$340K each per PRE, Inc. No permanent crossing signal at roadway bridge. |
| Fencing | LF | 3,800 | \$23.40 | \$88,920.00 | assume 6' chain link fence; per 2017 NMDOT avg bid is \$23.43 |
| AMAFCA Channel Strengthening | LS | 1 | \$100,000.00 | \$100,000.00 | |
| MRGCD Irrigation Structure | LS | 1 | \$150,000.00 | \$150,000.00 | Assume 10x10 PCC box; \$150K |
| Balloon Park Drainage Structure Crossing | LS | 1 | \$150,000.00 | \$150,000.00 | Assume 10x10 PCC box; \$150K |
| RV Park Roadway Bridge | LS | 1 | \$500,000.00 | \$500,000.00 | Assume new bridge or extend existing bridge along with earthwork needed to tie roadway back in to grade |
| Platform | LS | 1 | \$750,000.00 | \$750,000.00 | \$22.50/SF with full amenities; plan is 25' x ~750' = \$400K; \$750K more recent, review further |
| East Side Improvements | LS | 1 | \$75,000.00 | \$75,000.00 | Pedestrian infrastructure and ADA accessibility, asphalt trail, etc. |
| Pre-Fabricated Pedestrian Bridge | EA | 2 | \$500,000.00 | \$1,000,000.00 | 200' Long x 10' wide = \$3,500/BF from prev project; assume \$500K each |
| Subtotal | | | | \$6,847,920.00 | |
| Contingency (30%) | | | | \$8,902,296.00 | Use 30% for Class 4 estimate |
| Engineering (8%) | | | | \$712,183.68 | Design |
| Construction Administration (8%) | | | | \$712,183.68 | |
| Subtotal | | | | \$10,326,663.36 | |
| NMGRT (use 8.5%) | | | | \$877,766.39 | |
| TOTAL ESTIMATED COST | | | | \$11,204,429.75 | |

Table 2: Conceptual Cost Estimate – Alternative 2

**Conceptual Construction Estimate
Alternative 2**

NM Rail Runner Balloon Fiesta Park Track
November 21, 2018 (updated 11.27.2018)

| ITEM | UNIT | QTY | UNIT PRICE | COST | COMMENTS |
|---|------|--------|--------------|-----------------------|--|
| Right-of-way | LS | 1 | \$200,000.00 | \$200,000.00 | Assume easements will be acquired from AMAFCA, MRGCD, and BernCo - no cost Assume partial take of private property at curve (NE corner of NMRX & NDC) |
| Environmental Investigations/Certification | LS | 1 | \$100,000.00 | \$100,000.00 | Assume environmental clearance needed for federal funding |
| Embankment | CY | 17,250 | \$15.00 | \$258,750.00 | Assume 75% of Alternative 1 quantity |
| Excavation | CY | 22,050 | \$10.00 | \$220,500.00 | Assume 75% of Alternative 1 quantity |
| Track | | | | | |
| No. 11 Turnout | EA | 2 | \$225,000.00 | \$450,000.00 | Price for RR forces; assume 1.5 more for non-RR pricing |
| 136 lb Track | TF | 3,600 | \$400.00 | \$1,440,000.00 | Assumes material and installation; ballast, concrete ties, welds, etc. |
| 136 lb Track (storage track) | TF | 900 | \$400.00 | \$360,000.00 | Assumes material and installation; ballast, concrete ties, welds, etc. |
| Road Crossing | LF | 60 | \$750.00 | \$45,000.00 | Conservative - range \$350 to \$750/LF |
| CTC Signal work | EA | 1 | \$200,000.00 | \$200,000.00 | Preferred wayside signal option - electric locks, \$190K per Pacific Railway Enterprises, use \$200K |
| Crossing Signals | LS | 1 | \$350,000.00 | \$350,000.00 | Assume new signalized xing at Edith, \$340K each per PRE, Inc. No permanent crossing signal at roadway bridge. |
| Fencing | LF | 2,400 | \$23.40 | \$56,160.00 | Assume 6' chain link fence; per 2017 NMDOT avg bid is \$23.43. Less fencing needed in Alt 2, assume only from spur to north side of park. |
| AMAFCA Channel Strengthening | LS | 1 | \$100,000.00 | \$100,000.00 | |
| MRGCD Irrigation Structure | LS | 1 | \$150,000.00 | \$150,000.00 | Assume 10x10 PCC box; \$150K |
| Balloon Park Drainage Structure Crossing | LS | 1 | \$150,000.00 | \$150,000.00 | Assume 10x10 PCC box; \$150K |
| RV Park Roadway Bridge | LS | 1 | \$500,000.00 | \$500,000.00 | Assume new bridge or extend existing bridge along with earthwork needed to tie roadway back in to grade |
| Platform | LS | 1 | \$500,000.00 | \$500,000.00 | \$22.50/SF with full amenities; plan is 25' x ~500' = \$281,250; \$750K more recent, review further |
| East Side Improvements | LS | 1 | \$50,000.00 | \$50,000.00 | Pedestrian infrastructure and ADA accessibility, asphalt trail, etc. |
| Subtotal | | | | \$5,130,410.00 | |
| Contingency (30%) | | | | \$6,669,533.00 | Use 30% for Class 4 estimate |
| Engineering (8%) | | | | \$533,562.64 | Design |
| Construction Administration (8%) | | | | \$533,562.64 | |
| Subtotal | | | | \$7,736,658.28 | |
| NMGRT (use 8.5%) | | | | \$657,615.95 | |
| TOTAL ESTIMATED COST | | | | \$8,394,274.23 | |

Recommendations

Based on the potential impacts to the surrounding properties and community with Alternative 1, Alternative 2 is likely the better option. Both Alternative 1 and 2 provide access to the Balloon Fiesta Park, but Alternative 2 takes the obstacle of the North Diversion Channel out of the way. Based on these impacts and the total estimated project cost, Alternative 2 is the preferred alternative.

Appendix A

Wayside Signal Crossing and Crossing Estimates

Rail Runner Balloon Fiesta Park Track Wayside Signal Option #1: Electric Lock

CONSTRUCTION:

| | | |
|---|------------------|----------------|
| CONTRACTOR'S INDIRECT COST | \$9,380 | |
| SIGNAL LABOR COST | \$53,316 | |
| SIGNAL SUPPORT COST | \$0 | |
| SIGNAL MATERIAL COST | <u>\$118,562</u> | |
| CONSTRUCTION COST | | \$181,258 |
| CONTRACTOR PROFIT (LABOR & INDIRECTS ONLY) - 15 % | | <u>\$9,404</u> |

TOTAL CONSTRUCTION COST

\$190,663

Rail Runner Balloon Fiesta Park Track Wayside Signal Option #2: Control Point

CONSTRUCTION:

| | | |
|---|------------------|-----------------|
| CONTRACTOR'S INDIRECT COST | \$46,111 | |
| SIGNAL LABOR COST | \$262,085 | |
| SIGNAL SUPPORT COST | \$0 | |
| SIGNAL MATERIAL COST | <u>\$674,047</u> | |
| CONSTRUCTION COST | | \$982,243 |
| CONTRACTOR PROFIT (LABOR & INDIRECTS ONLY) - 15 % | | <u>\$46,229</u> |

TOTAL CONSTRUCTION COST

\$1,028,472

Rail Runner Balloon Fiesta Park Track Edith Blvd. NE Crossing Warning

CONSTRUCTION:

| | | |
|---|------------------|-----------------|
| CONTRACTOR'S INDIRECT COST | \$15,787 | |
| SIGNAL LABOR COST | \$89,729 | |
| SIGNAL SUPPORT COST | \$0 | |
| SIGNAL MATERIAL COST | <u>\$218,954</u> | |
| CONSTRUCTION COST | | \$324,470 |
| CONTRACTOR PROFIT (LABOR & INDIRECTS ONLY) - 15 % | | <u>\$15,827</u> |

TOTAL CONSTRUCTION COST

\$340,297



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